

Color plate section

M. I. Mishchenko, L. D. Travis, and A. A. Lacis
Scattering, Absorption, and Emission of Light by Small Particles
Cambridge University Press, Cambridge (2002)
<http://www.giss.nasa.gov/~crmim/books.html> © NASA

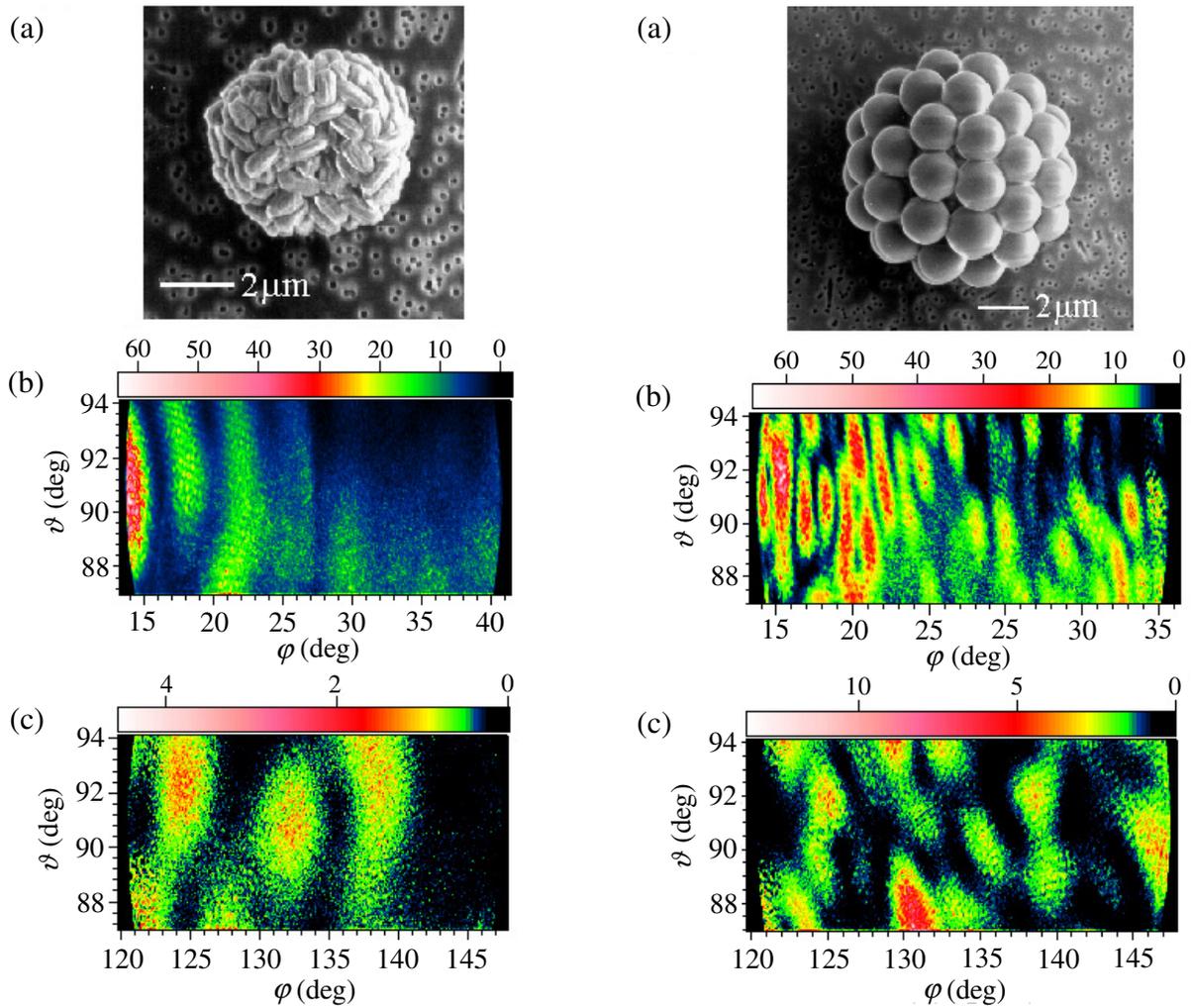


Plate 8.1. On the left: (a) scanning electron microscope image of a cluster of *Bacillus subtilis* spores and two-dimensional angular patterns of scattered intensity (in arbitrary units) in (b) the near-forward direction and (c) the near-backward direction. The particle was illuminated by a laser beam incident along the positive direction of the x -axis of the laboratory reference frame. The horizontal and vertical axes of each diagram show the azimuth and zenith angles of the scattering direction, respectively. On the right: as on the left, but for a cluster of polystyrene latex micro-spheres. (From Holler *et al.* 1998.)

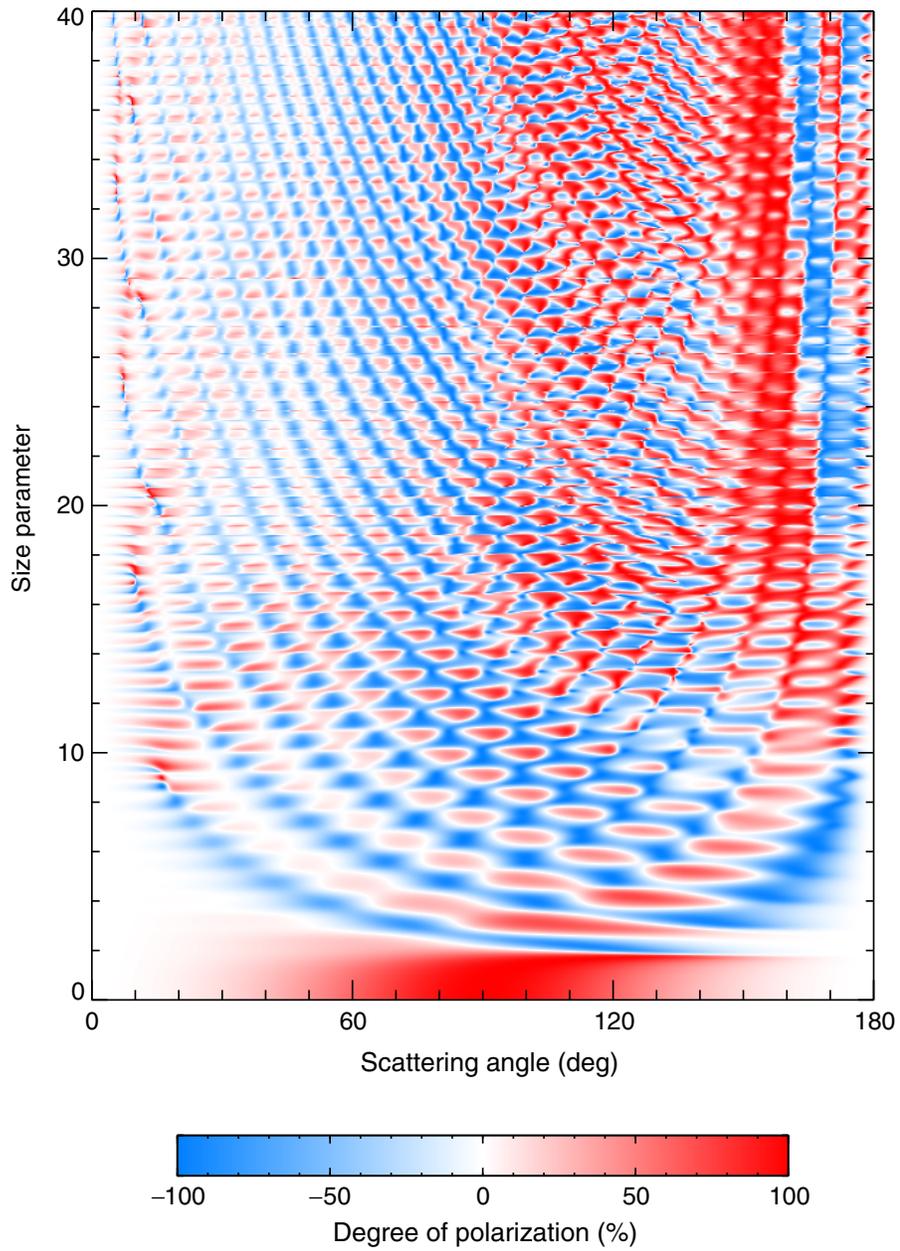


Plate 9.1. Low-resolution color image of the degree of linear polarization $P_Q = -b_1/a_1$ for monodisperse spherical particles with relative refractive index $m = 1.4$.

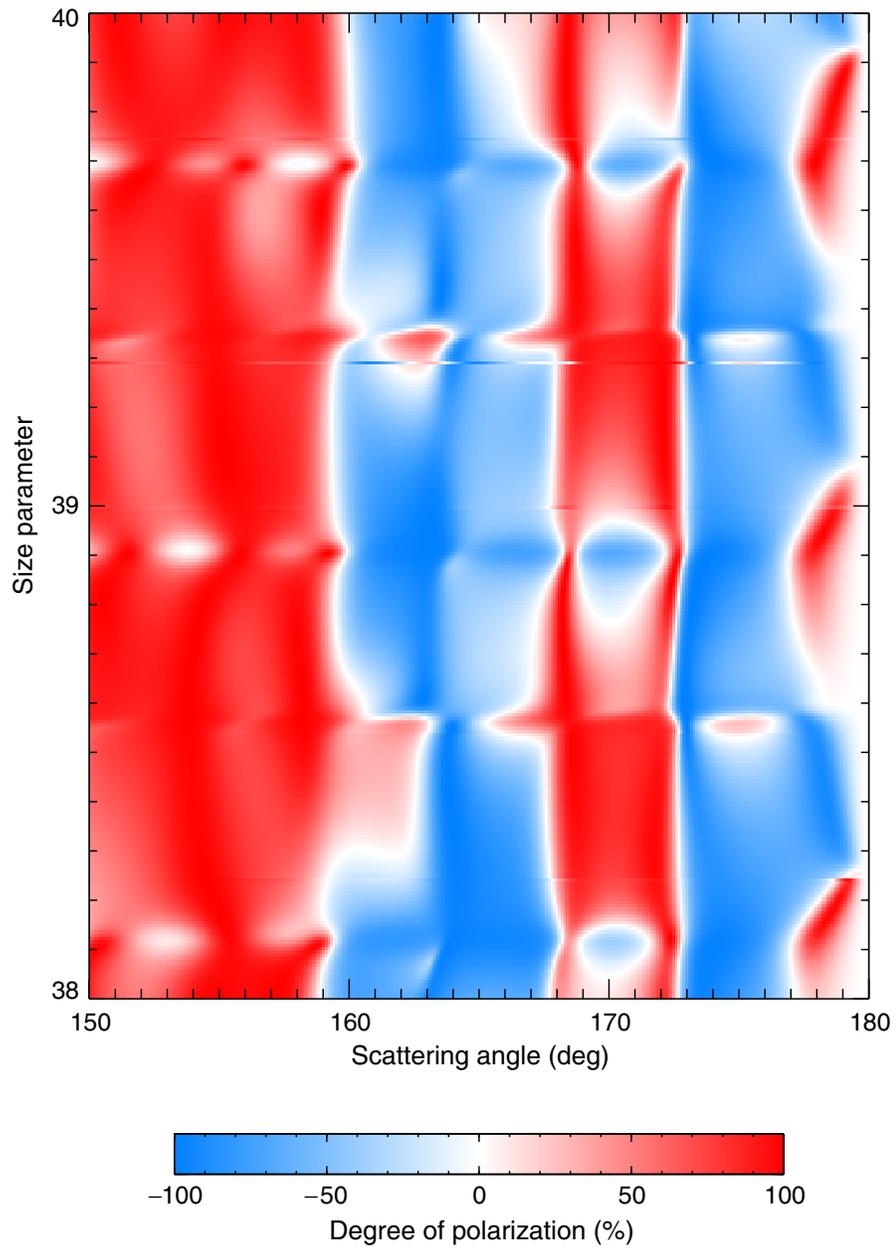


Plate 9.2. As in Plate 9.1, but using a finer sampling resolution.

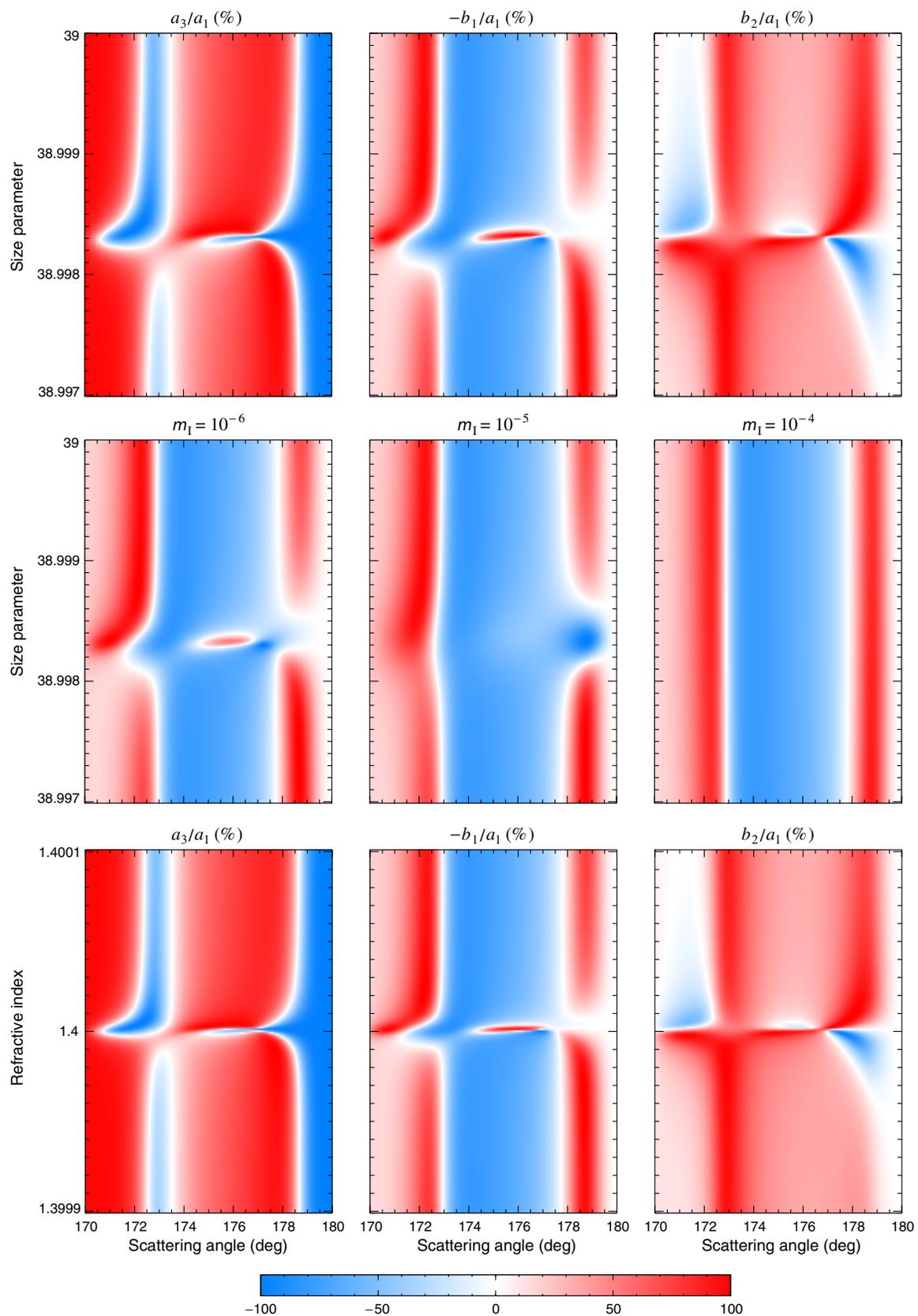


Plate 9.3. Top three panels: high-resolution images of Stokes-scattering-matrix-element ratios a_3/a_1 , $-b_1/a_1$, and b_2/a_1 within the super-narrow resonance centered at $x \approx 38.9983$, for $m = 1.4$. Middle three panels: as in the top panels, but for the ratio $-b_1/a_1$ with $m_1 = 10^{-6}$, 10^{-5} , and 10^{-4} . Bottom three panels: the ratios a_3/a_1 , $-b_1/a_1$, and b_2/a_1 versus θ and m_R for $x = 38.9983$ and $m_1 = 0$.

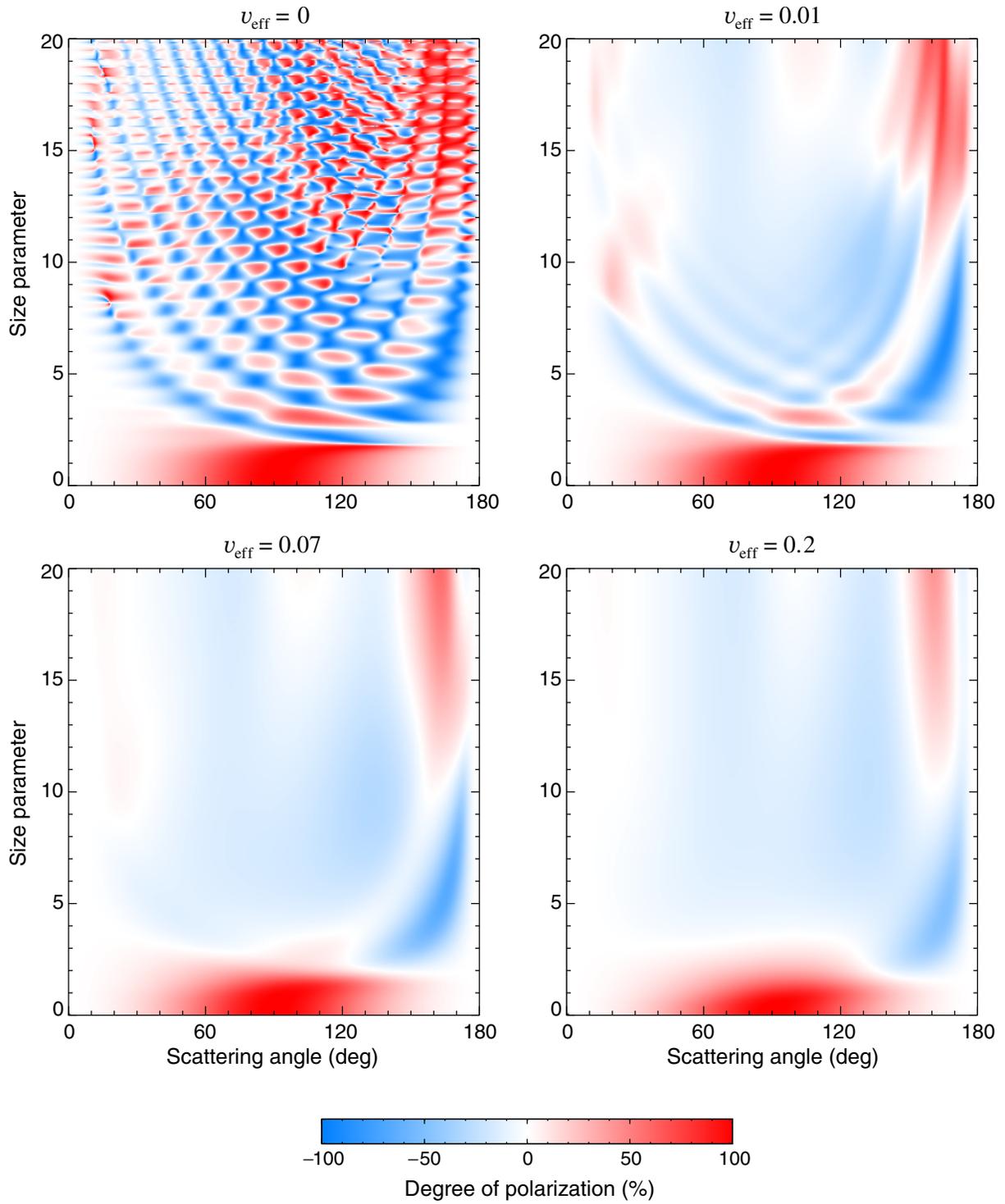


Plate 9.4. Images of the degree of linear polarization $P_Q = -b_1/a_1$ versus effective size parameter and scattering angle, for spherical particles with $m = 1.44$ and $v_{\text{eff}} = 0$ (the value for monodisperse particles), 0.01, 0.07, and 0.2.

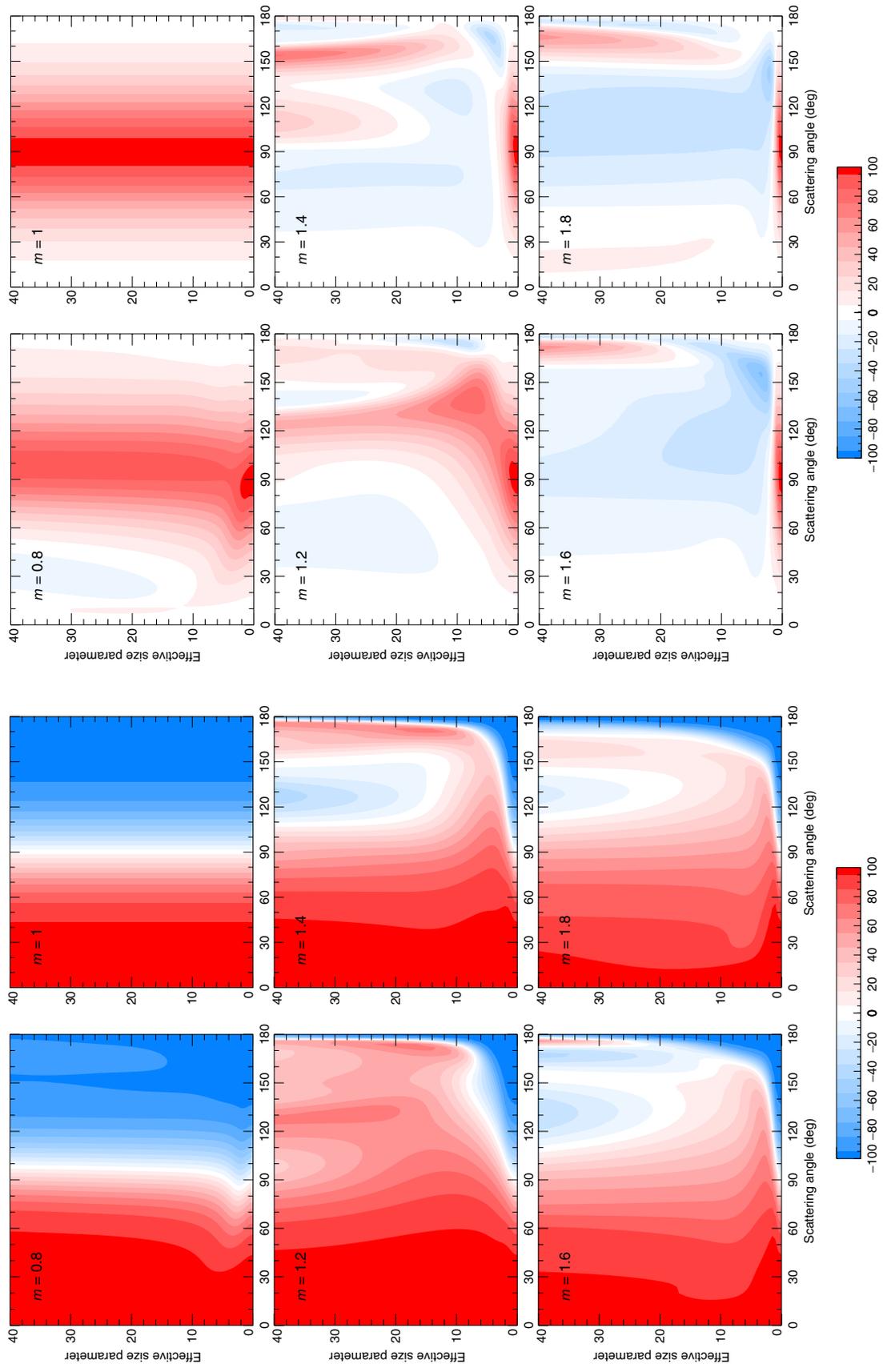


Plate 9.5. Two left-hand columns: color-contour plots of the ratio a_3/a_1 (%) versus effective size parameter and scattering angle for polydisperse spherical particles with relative refractive indices $m = 0.8, 1, 1.2, 1.4, 1.6, 1.8$. Two right-hand columns: as in the two left-hand columns, but for the ratio $-b_1/a_1$ (%).

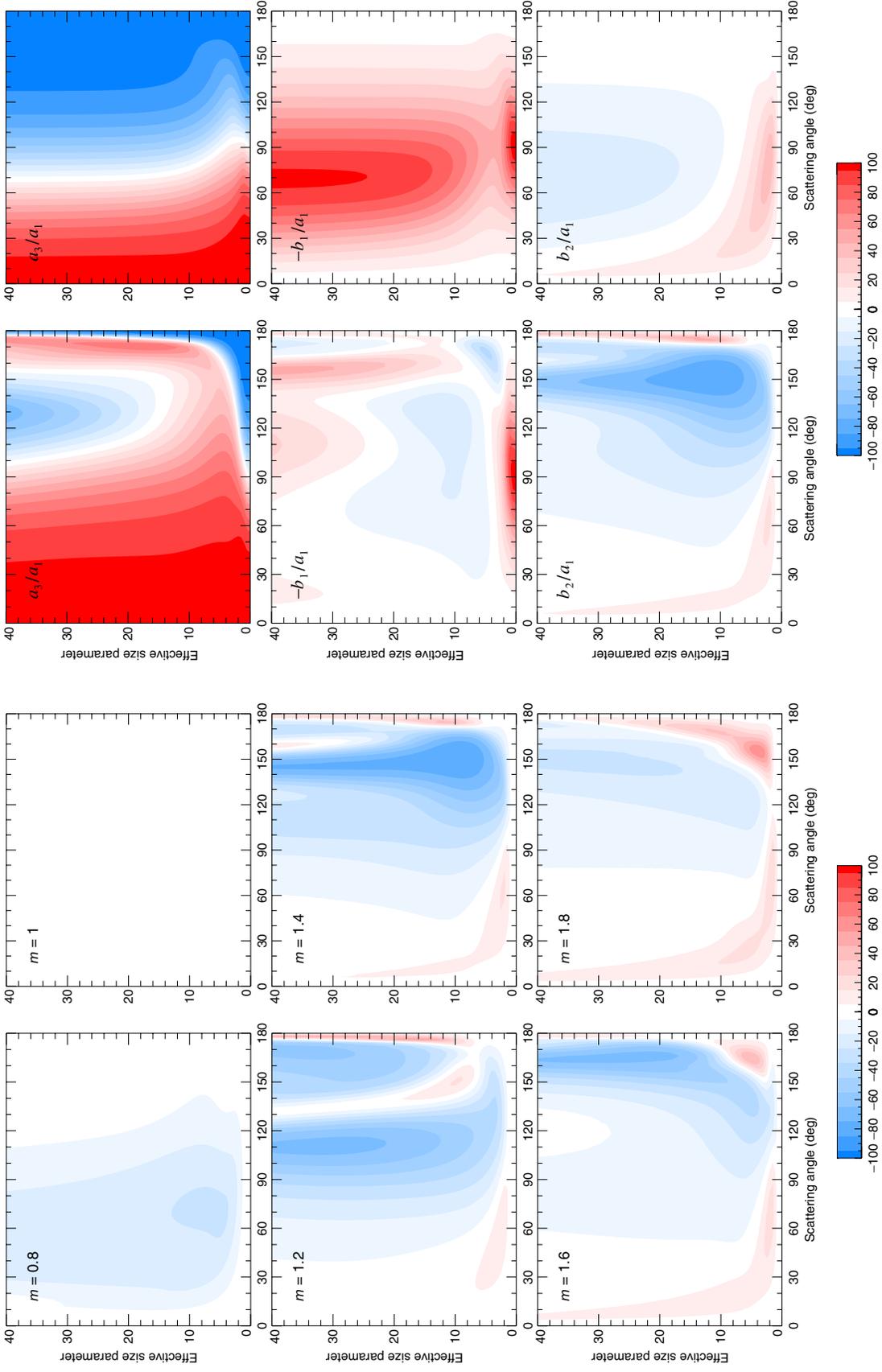


Plate 9.6. Two left-hand columns: as in Plate 9.5, but for the ratio b_2/a_1 (%). Two right-hand columns: the ratios a_3/a_1 , $-b_1/a_1$, and b_2/a_1 (%) versus effective size parameter and scattering angle for polydisperse spherical particles with relative refractive indices $m = 1.4 + i0.01$ and $1.4 + i0.3$.

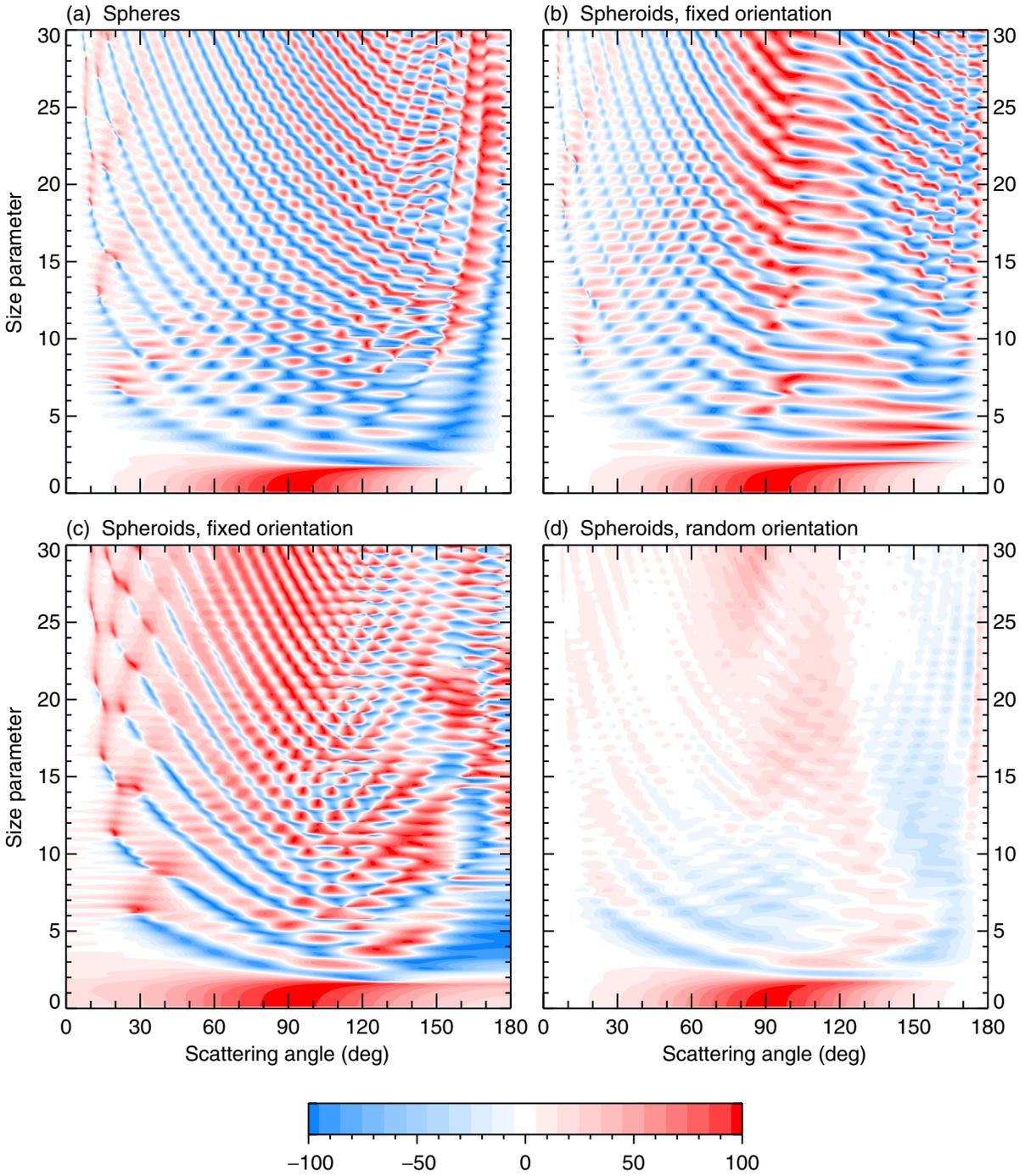


Plate 10.1. The ratio $-Z_{21}(\vartheta^{\text{sca}}, \varphi^{\text{sca}} = 0; \vartheta^{\text{inc}} = 0, \varphi^{\text{inc}} = 0) / Z_{11}(\vartheta^{\text{sca}}, \varphi^{\text{sca}} = 0; \vartheta^{\text{inc}} = 0, \varphi^{\text{inc}} = 0)$ in % versus ϑ^{sca} and size parameter for monodisperse spheres and surface-equivalent oblate spheroids in fixed and random orientations. In panels (b) and (c), the rotation axis of the spheroids is oriented respectively along the z -axis and along the x -axis of the laboratory reference frame. The relative refractive index is $1.53 + i0.008$ and the spheroid axis ratio $a/b = 1.7$.